

Appl. No. 10/071,748  
Amdt. dated September 2, 2004  
Amendment under 37 CFR 1.116 Expedited Procedure  
Examining Group

PATENT

**Amendments to the Drawings:**

The attached sheets include formal drawings for Figs. 1–2. These sheets replace the original sheets for Figs. 1–2.

Attachment: Replacement Sheets for Figs. 1–2

**REMARKS/ARGUMENTS**

The Office Action mailed May 28, 2004, claims 1, 3-11 and 25-32 were rejected under 35 U.S.C. §103(a) over U.S. Patent No. 5,618,767 to *Benker* in view of U.S. Patent No. 5,643,514 to *Chwastiak et al.* Claim 2 was rejected under 35 U.S.C. §103(a) over U.S. Patent No. 5,618,767 to *Benker* in view of U.S. Patent No. 5,643,514 to *Chwastiak et al.*, and further in view of U.S. Patent No. 2,938,807 to *Andersen*. Finally, claim 12 was rejected under 35 U.S.C. 103(a) over U.S. Patent No. 5,618,767 to *Benker* in view of U.S. Patent No. 5,643,514 to *Chwastiak et al.*, and further in view of U.S. Publication No. 2003/0180579 to *Waggoner et al.* Reconsideration and withdrawal of the rejections is respectfully requested in light of the following remarks.

**A. The Rejection of Claims 1, 3-11 and 25-32 over *Benker* in view of *Chwastiak* is Addressed**

Claims 1, 3-11 and 25-32 were rejected under 35 U.S.C. § 103(a) over *Benker* in view of *Chwastiak*. This rejection is respectfully traversed because neither reference describes nor suggests the wt% ranges of starches and liquids recited in claims 1 and 25.

As noted in the Response to the previous Office Action, a surprising finding in the present invention is that a relatively small amount of starch in the ceramic slurry imparted higher than expected green strength to the formed body, such that the body was able to maintain its structural integrity throughout the molding and removal process. The high green strength prevented the slurry from disintegrating during the casting process, while also maintaining a constant composition throughout the body. See the specification, page 8, paragraph [28]. This discovery is reflected in claim 1 by the relative amounts of starch ("about 0.01 wt% to about 15 wt%") and liquid ("about 10 wt% to about 30 wt%") used in the ceramic slurry. Similarly, the discovery is reflected in claim 25 by the relative amounts of starch and water.

The Office Action correctly points out that the highly concentrated starch solution used in *Benker* is diluted when the mixture silicon carbide, carbon, and starch gets dissolved or suspended in water. See *Benker*, col. 3, lines 32-35. However, *Benker* provides no quantitative

information on the amount of water used, or the degree to which the starch solution is diluted. Even if suspending the mixture in water dilutes the starch to the claimed concentration range, there is no suggestion that this is complemented by the water making up about 10 wt% to about 30 wt% of the mixture. In fact, the implication in *Benker*, where the mixture is "dissolved," "suspended," or "completely dispersed" in water, is that the wt% of water is well above the upper limit (*i.e.*, about 30 wt%) for a liquid stated in claims 1 and 25.

Furthermore, one of skill in the art reading *Benker* would not be motivated to make the slurry with starch and liquid within the claimed ranges, because *Benker* offers no hint that those ranges impart higher than expected green strength to a formed body. The only purpose *Benker* notes for diluting the mixture is to adapt the dissolved or suspended mixture for a spray drying technique, which is presented as an alternative to pressure casting. *See Benker*, col. 3, lines 32–41. Accordingly, one of skill in the art reading *Benker* would have no motivation to make a ceramic slurry for compacting that has the relative amounts of starch and liquid stated in claims 1 and 25.

The failures of *Benker* to describe the combination of starch and liquid within the claimed ranges is not remedied by *Chwastiak*, which fails to suggest the use of starch as a binder for a ceramic slurry. For at least these reasons, claims 1 and 25 are allowable over the combination of *Benker* and *Chwastiak*, as are claims 3–11 and 26–32, which depend from claims 1 and 25, respectively. Accordingly, withdrawal of the rejection of claims 1, 3–11 and 25–32 over *Benker* in view of *Chwastiak* is respectfully requested.

B. The Rejections of Claims 2 and 12 under § 103(a) are Addressed

Claim 2 was rejected under 35 U.S.C. § 103(a) over *Benker* in view of *Chwastiak et al.*, and *Andersen*, and claim 12 was rejected under § 103(a) over *Benker* in view of *Chwastiak et al.*, and *Waggoner et al.* These rejections are respectfully traversed for at least the reasons stated above.

Claims 2 and 12 depend from claim 1 and therefore include all the elements of claim 1. As noted above, neither *Benker* nor *Chwastiak* describe the combination of starch and

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liquid in the within the claimed ranges of claim 1. *Andersen* and *Waggoner* cannot remedy this deficiency because, like *Chwastiak*, neither describe using starch as a binder. Accordingly, claims 2 and 12 are allowable over these references, and withdrawal of the rejections of claims 2 and 12 under § 103(a) is respectfully requested.

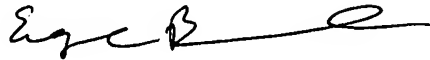
### CONCLUSION

In view of the foregoing, claims 1–12 and 25–32 are believed to be in condition for allowance. Accordingly, the issuance of a formal Notice of Allowance at an early date is respectfully requested.

Please charge Deposit Account No. 24-1430 the \$110.00 fee for a 1 month extension of time 37 C.F.R. § 1.136(a)(1). Should any additional extension of time be required, please consider this a petition therefore and charge the required fee to the above-identified deposit account. No other fees are believed due with this Amendment, but should any be required, please charge the above-identified deposit account for any fee deficiency.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 303-571-4000.

Respectfully submitted,



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